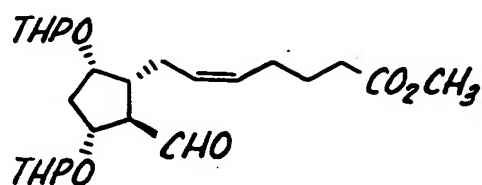
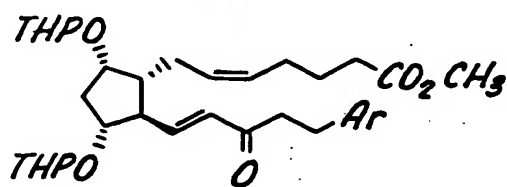
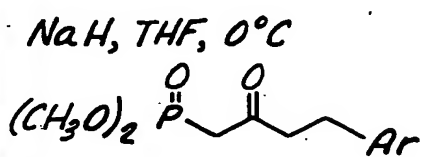


FIG. 1.

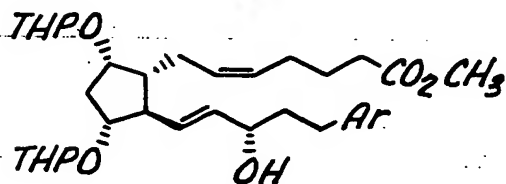
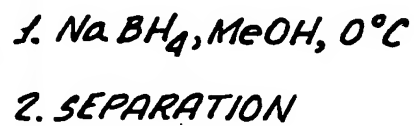
1/5



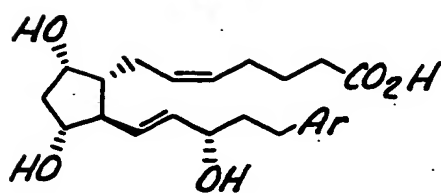
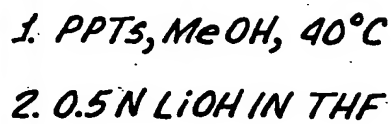
1



2



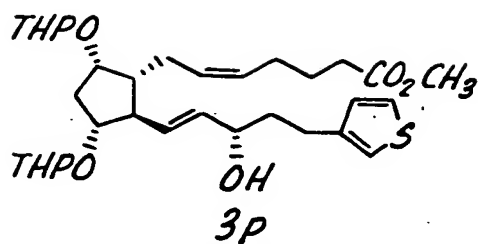
3



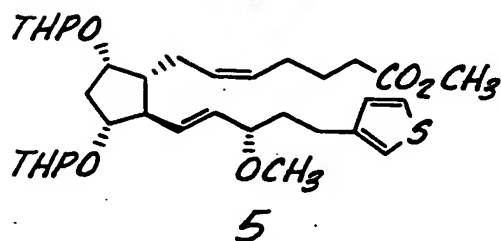
4a-8

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FIG. 2.



AgOTf, MeI, CH<sub>2</sub>Cl<sub>2</sub>  
OR  
MeOTf, 2,6-LUTIDINE, CH<sub>2</sub>Cl<sub>2</sub>



1. PPT3, MeOH, 40°C  
2. 0.5N LiOH IN THF

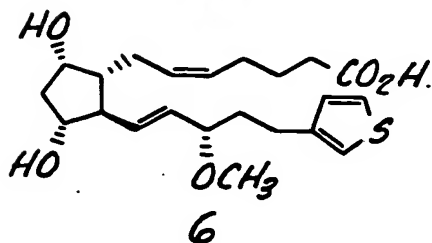
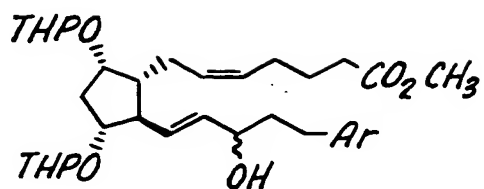


FIG. 3.

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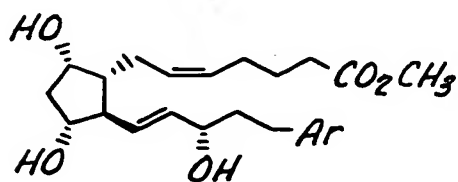


3p  $\alpha\text{-OH}$

3q  $\beta\text{-OH}$

3r  $\alpha\text{-OH}$

$\text{PPTS, MeOH, } 40^\circ\text{C}$

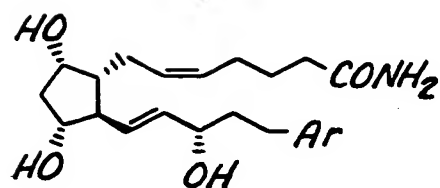


7p  $\alpha\text{-OH}$

7q  $\beta\text{-OH}$

7r  $\alpha\text{-OH}$

$\text{NH}_4\text{Cl}$   
 $\text{NH}_3$   
 $55\text{-}60^\circ\text{C}$

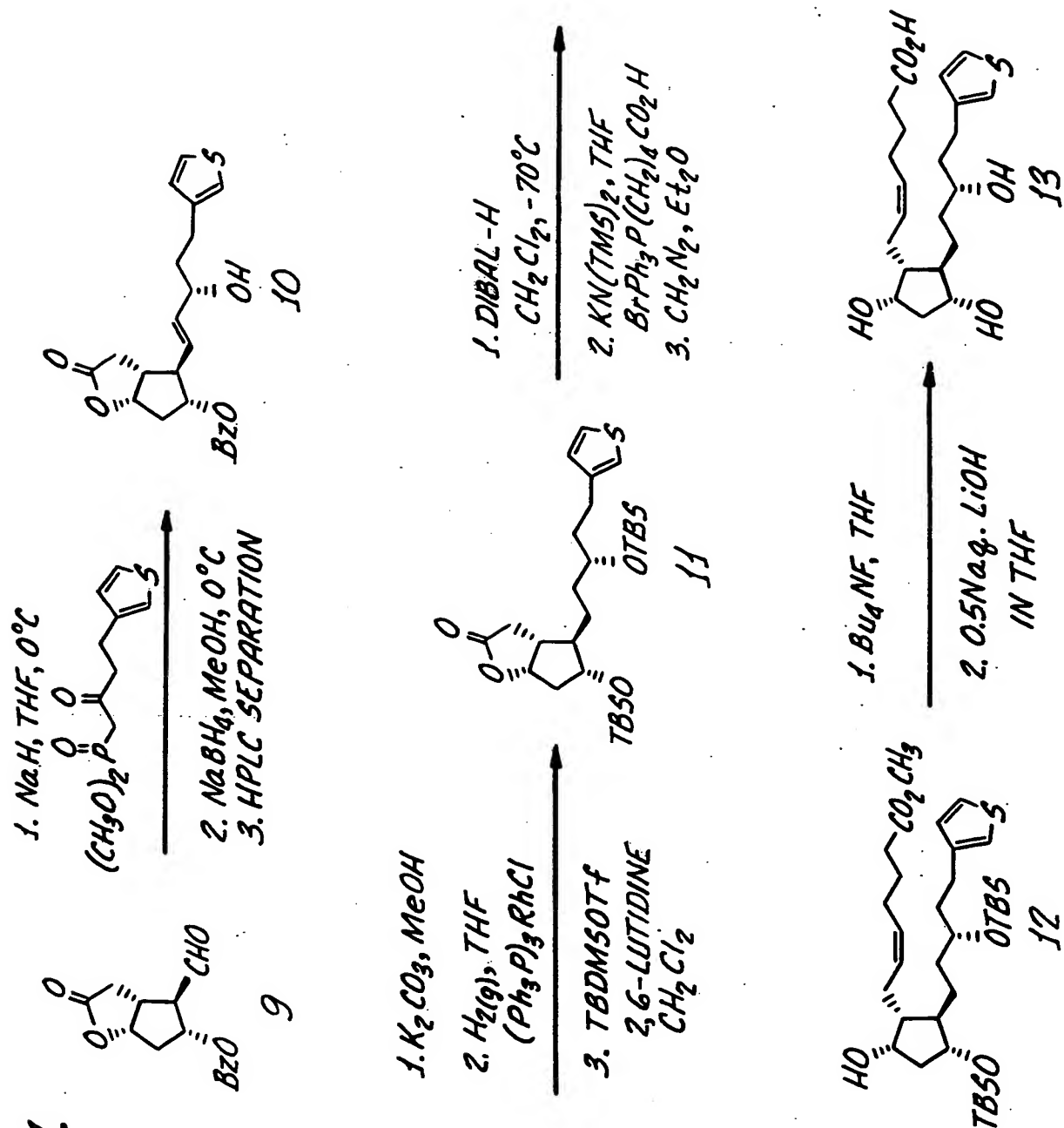


8p  $\alpha\text{-OH}$

8q  $\beta\text{-OH}$

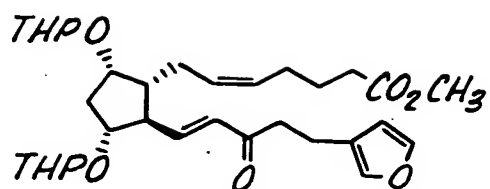
8r  $\alpha\text{-OH}$

FIG. 4.



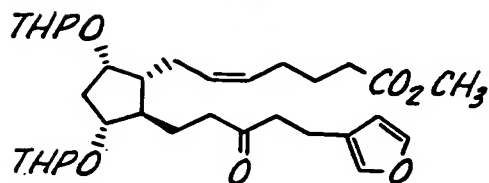
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FIG. 5.



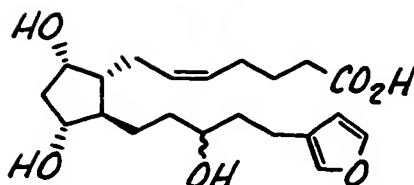
2k

↓  
ALIQVAT 336  
Na<sub>2</sub>S<sub>2</sub>O<sub>4</sub>  
NaHCO<sub>3</sub>  
BENZENE:H<sub>2</sub>O, 80°C



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↓  
1. NaBH<sub>4</sub>, MeOH  
2. PPTS, MeOH, 45°C  
3. 0.5 N LiOH IN THF



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